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ABSTRACT

Beginning with a statement on the profession of dental hygiene and the two types of professional preparation available in the field, the pilot study then presents a two-part summary of its findings and an explanation of the methodology employed. Part I of the main portion of the report concerns employment characteristics (status, age, residence, number of hours, professional education, preferred number of hours in work week, work settings, work functions, work experience), back ground characteristics (marital status, age, residence, professional education, location of training, retention of Washington educated dental hygienists), continuing professional education, and reported reasons for inactive status for dental hygienists residing in Washington. Part II is devoted to comparisons of the 1969 and 1966 data in a four-page discussion of the trends in numbers and distribution, employment characteristics, and background characteristics. Two appendixes are provided: one, the questionnaire used; and two, data tables selected for additional detail to the textual discussion and to provide actual numbers for manpower planning. A list of six references completes the report. (AG)

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Dental Hygienists Licensed in Washington

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MAY 1970

STATE OF WASHINGTON
DEPARTMENT OF HEALTH
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All inquiries concerning the report and requests for data should be addressed to Health Manpower Project, Washington State Department of Health, 815, Smith Tower, Seattle, Washington 98104. Data were gathered in cooperation with the Division of Professional Licensing. The report was written by the staff of the Health Manpower Project. The survey is considered a Pilot Study. Modifications in design and analyses are anticipated for future studies.

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The Profession of Dental Hygiene

Dental hygienists are the only dental auxiliaries who provide service directly to the patient, and who, like dentists, are required in each state to obtain a license to practice. The hygienist, working under the direction of a dentist, performs prophylaxes (scaling and polishing of teeth), exposes and processes dental x-ray films, and applies fluoride solution to children's teeth. As an educator, she instructs individual patients in toothbrushing techniques and proper diet related to the teeth, and performs other duties in conformity with her training and licensing.

(from Health Resources Statistics, 1968. Public Health Service, Health Services and Mental Health Administration.

Professional Preparation in Dental Hygiene
- Washington State -

Two types of college training are currently available to the dental hygiene student. The two-year associate degree program qualifies a hygienist for clinical practice and the 4-year bachelor's degree program offers a level of training required for teaching and public health positions. Until 1968 the University of Washington's baccalaureate program was the only training program available for the study of dental hygiene in Washington. In 1968 three community colleges initiated associate degree programs in dental hygiene and their first classes will graduate in June, 1970. The total projected number of graduates from Washington training programs in June 1970 is 75.

The baccalaureate program requires two years of college level pre-dental hygiene courses for entrance to the two-year program offered by the Department of Dental Hygiene, University of Washington. The Associate Degree programs in the community colleges offer the student two years of specialized course-work and clincial training. After completion of either the baccalaureate or the Associate Degree program, the student is eligible to register for the National Board Examination and the state licensing examination.

In other states, some 4-year public and private colleges have offered 2-year programs in dental hygiene and grant Certificates upon their completion. As Junior or Community Colleges have developed in the United States, additional programs leading to a certificate and/or an Associate Degree have been offered.

Washington is one of the 32 states which admits males to the state licensing examination; 18 states restrict the field to women. (reference 1)

Table I.
Graduation and Enrollment Figures For [1]
Dental Hygiene Training Programs in Washington State

Educational Institutions	Number of Graduates June, 1970	Number completing first year of program, June 1970
Clark College	20	25
Shoreline Community College	22	27
Yakima Valley College	10	14
University of Washington	23	23
Total	75	89

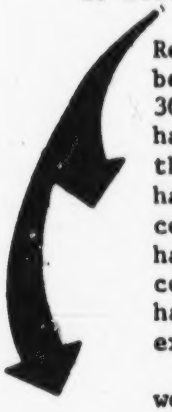
[1] figures are current as of April 30, 1970

Summary of the Report

This survey, which is based on information gathered through the Department of Motor Vehicles, Division of Professional Licensing, at the time of license renewals, had a 88% response rate. About half (58%) of the dental hygienists licensed in Washington actually resided in the state; the other major states of residence were Oregon and California. The following discussion refers to Washington residents only.

Profile of the "Typical" Dental Hygienist

The "typical" dental hygienist living in Washington is most likely to:



Reside in King County;
be a married female between the ages of 30 and 34;
have a Bachelor of Science Degree from the University of Washington;
have taken no academic coursework for continuing education;
have taken one or more short-term courses or workshops;
have between one and five years of experience;

work part-time in one dental office;
engage primarily in oral prophylaxis, but frequently performs other clinical duties and patient education.

Employment and Personal Characteristics

Eighty five percent of the dental hygienists living in Washington resided in the most populous counties (King, Pierce, Snohomish and Spokane).

Three fourths were employed and one fifth were unemployed. Unemployment was highest in the years of childbearing and rearing.

There was a wide range in the number of hours worked in a typical work week: 31% worked 1-16 hours; 32% worked 17-32 hours; and 36% worked 33 hours or more. About half of the hygienists were satisfied with the hours in their current work week; one third would prefer fewer hours and 17% would like to work additional hours.

One half worked in one private dental office; over a third in two or more offices. Nearly all hygienists performed a variety of clinical tasks, including patient dental education, but 80% specified oral prophylaxis as their major work function.

Half of the respondents were under the age of 35. Compared to two other health occupations, licensed practical nursing and registered nursing, dental hygienists constitute a younger group of professionals. This finding has implications for employment and the extent of employment (full or part-time), since women in the childbearing and rearing ages are more frequently unemployed or working part-time.

Half of the dental hygienists had earned a baccalaureate degree, nearly all such degrees were awarded from the University of Washington. Over a third had earned certificates; these had been awarded from institutions in Oregon and the midwestern states. Older hygienists (age 50 and over) were much more likely to have earned a certificate than a baccalaureate degree.

Of the hygienists trained in Washington, 63 had moved out of state, although retaining their Washington licensure. One hundred and six hygienists trained out of state had become licensed and resident in

Washington--a "net gain" of 43 health professionals when only training information is considered.

A third had participated in academic coursework in the past five years; half had taken one or more short-term or refresher courses. Older respondents were slightly less likely to have taken academic coursework and more likely to have participated in short-term or refresher courses.

REPORTED REASONS FOR INACTIVE STATUS

Respondents reporting an inactive status in dental hygiene were asked to specify the major reasons for their unemployment. As in other largely female occupations, the answers usually involved family responsibilities. One tenth were in the process of moving and indicated an interest in returning to work.

SUMMARY OF PART II. TRENDS IN THE DATA--1966 and 1969

Preliminary statistical findings of the October, 1966 survey conducted by the Washington State Board of Dental Examiners were made available to the Health Manpower Project for purposes of comparison. Only a few selected tables from the 1966 findings are discussed in this report.

Between 1966 and 1969 the number of dental hygienists licensed in Washington increased by 21%. About the same percentage lived in the state in 1966 as in 1969 (over half of the licensed hygienists), and their residence by county was overwhelmingly urban.

In 1966 and 1968, about three fourths of the respondents were employed in the field of dental hygiene, worked similar hours in a typical week and no change was found in the reported duties.

Hygienists in 1969 were found to constitute an older group of professionals. Twenty two percent in 1966 and only 2% in 1969 were under the age of 25.

Information from the 1966 survey, which was not explored in the 1969 survey, provides additional detail to this report. Presence of children, for example, was found to be a factor in working part-time rather than full-time, but differences were not as great as might have been expected. Twenty six percent of the married women with no children and 7% of those with children were working full rather than part-time. It was suggested that such small percentages may arise from preference or lack of available full-time opportunities.

Interest in taking refresher courses and plans for returning to college for career advancement were found to be related to a currently active, rather than inactive employment status. Only a small number of inactive hygienists were definitely planning their return to work--similar findings have been found in studies of other inactive female professionals.

The official report of the 1966 survey is expected to be published sometime during 1970.

Methodology of the Study

Method and Response Rate: This report is based on information gathered through the Department of Motor Vehicles, Division of Professional Licensing, State of Washington, at the time of license renewals.

Analysis of data obtained through this survey was performed by the staff of the Health Manpower Project, Washington State Department of Health.

On June 28, 1969, 640 research forms were mailed with license renewals to all dental hygienists licensed in the state of Washington. By March 30, 1970, 583 hygienists had renewed their licensed for 1970. Five hundred and fourteen also returned their research forms with their license renewals. This represents a return of 88% of all dental hygienists licensed by that date.

Restrictions on the Data: The survey upon which this report is based is considered a pilot study. Modifications in the questionnaire will be made in the 1970 survey of dental hygienists licensed in Washington state. The figures in this report may be considered as representative for the counties and the state. Specific restrictions on the data will be stated.

PART I: Findings of the 1969 Survey

INTRODUCTION

This report will begin with an examination of the states of residence of dental hygienists licensed in Washington. Discussion will then focus on only those who were residents of Washington, since they constitute the basis of the state's actual supply of dental hygiene manpower.

Additional details to the discussion may be found in the selected data tables, Appendix B.

Geographic Distribution

State of Residence. About half (58%) of the dental hygienists licensed in Washington lived in the state. Sixteen percent resided in Oregon or California and 11% failed to specify their state of residence. The major states of residence are shown in Table 1.

Table 1.
State of Residence for Dental Hygienists
Licensed in Washington State

State	Number	Percent
Washington	296	58%
Oregon	44	8%
California	41	8%
All Other States	71	14%
Foreign (including Canada)	6	1%
No Response	56	11%
Total	514	100%

Dental Hygienists
RESIDING IN WASHINGTON

Residence by Washington County. Residence was strikingly urban, as shown by the shaded areas of Figure 1 (the accompanying map). Eighty five percent of the dental hygienists living in Washington resided in King, Snohomish, Pierce or Spokane counties. The data indicate that no dental hygienists lived in 21 of the 39 Washington counties.

Employment Characteristics

Employment Status

Seventy seven percent of the respondents were employed full or part time in dental hygiene. Twenty percent were unemployed, students or retired. Three percent were employed outside the field of dental hygiene.

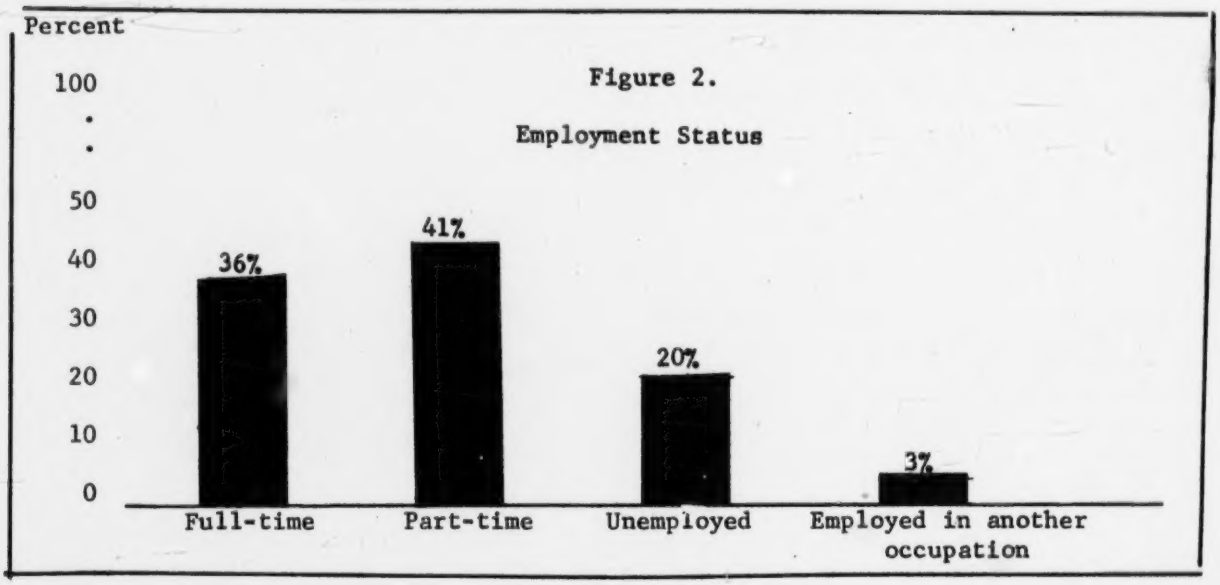
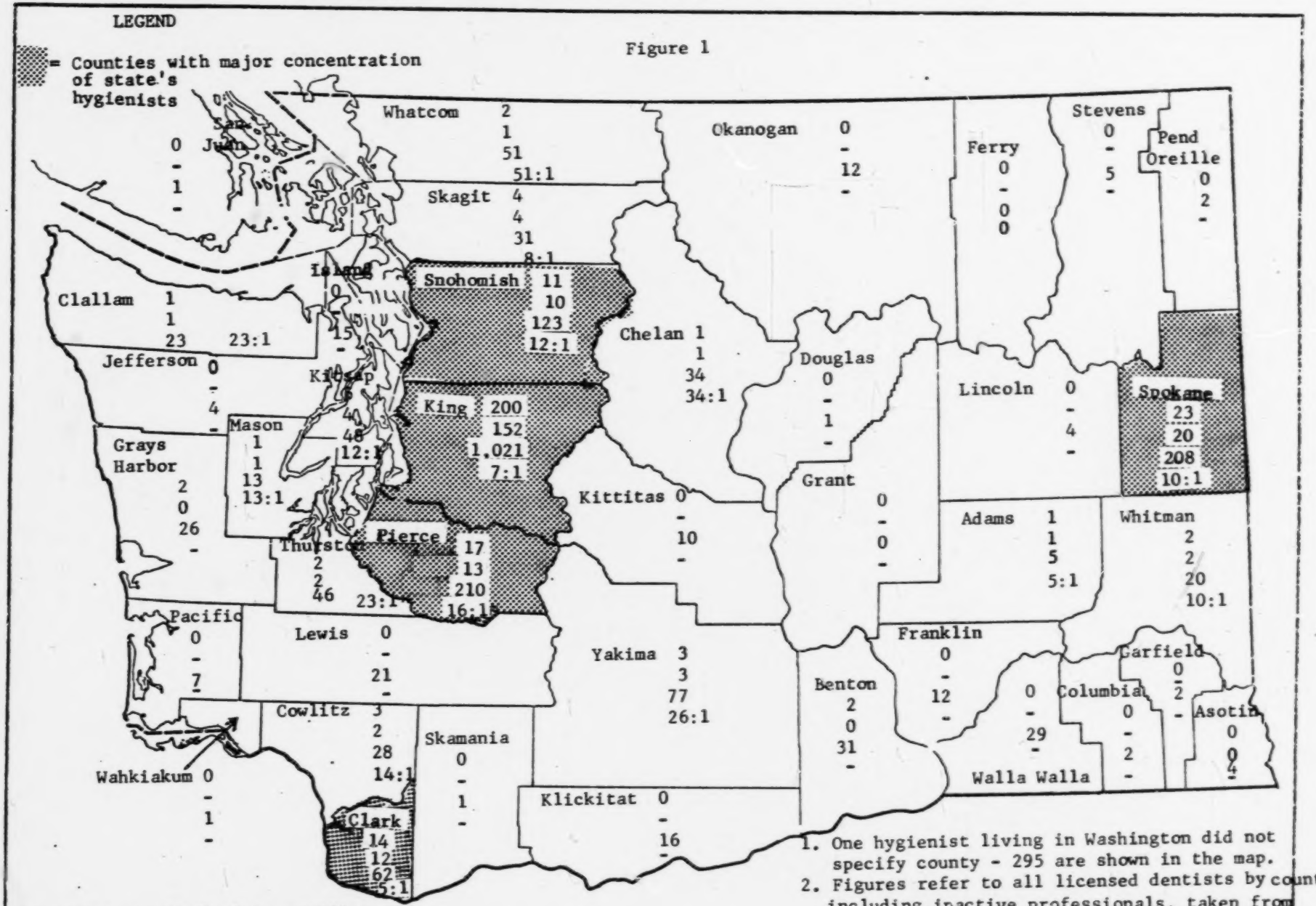


Figure 2.

Employment Status

County of Residence[1] of Dental Hygienists Residing in Washington

Figure 1

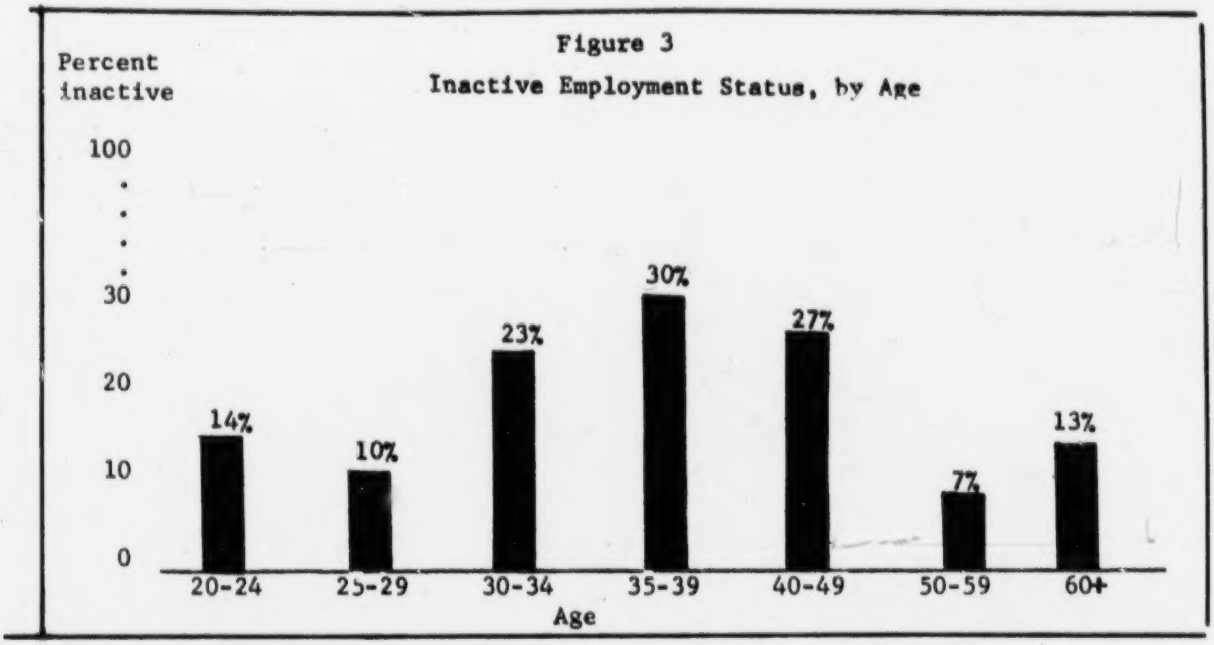

LEGEND
= Counties with major concentration of state's hygienists
San Juan 0 - 1 -
Whatcom 2 1 51 51:1
Skagit 4 4 31 8:1
Island 0 - 15 -
Snohomish 11 10 123 12:1
Clallam 1 1 23 23:1
Jefferson 0 - 4 -
Kitsap 6 40 48 12:1
King 200 152 1,021 7:1
Mason 1 1 13 13:1
Grays Harbor 2 0 26 -
Thurston 2 2 46 23:1
Pierce 17 13 210 16:1
Pacific 0 - 7 -
Lewis 0 - 21 -
Cowlitz 3 2 28 14:1
Wahkiakum 0 - 1 -
Skamania 0 - 1 -
Clark 14 12 62 5:1
Klickitat 0 - 16 -
Yakima 3 3 77 26:1
Kittitas 0 - 10 -
Okanogan 0 - 12 -
Chelan 1 1 34 34:1
Douglas 0 - 1 -
Grant 0 - 0 -
Benton 2 0 31 -
Franklin 0 - 12 -
Walla Walla 0 - 29 -
Ferry 0 - 0 0
Stevens 0 - 5 -
Pend Oreille 0 2 -
Lincoln 0 - 4 -
Spokane 23 20 208 10:1
Adams 1 1 5 5:1
Whitman 2 2 20 10:1
Garfield 0 - 2 -
Columbia 0 - 2 -
Asotin 0 0 4 -

1st figure No. hygienists residing
2nd figure No. hygienists employed (full or part time)
3rd figure No. dentists licensed in 1968[2]
4th figure No. dentists per employed hygienist

1. One hygienist living in Washington did not specify county - 295 are shown in the map.
2. Figures refer to all licensed dentists by county, including inactive professionals, taken from Distribution of dentists in the United States, by state, region district and county, American Dental Association, 1969.

Employment Status and Age. As has been found in other largely female health occupations, hygienists in the childrearing years of their life cycle are most likely to be professionally inactive. Thirty percent of the hygienists age 35 to 39 were inactive compared to 10% of those age 25 to 29. This can be seen in Figure 3.

Figure 3
Inactive Employment Status, by Age



Employment Status and Professional Education. When employment status was examined relative to type of educational program, there were some slight differences. Graduates of a Baccalaureate program were more often inactive compared to those with a certificate or with degrees beyond the Baccalaureate level. Twenty four percent of the hygienists with a Baccalaureate and 16% of those with a certificate were inactive.

Employment Status and Residence. Hygienists licensed in and living in Washington, Oregon, or California were more likely to be employed than those residing in other states. Eighty percent of the respondents living in Washington, 89% in Oregon and 80% in California were employed compared to 43% living in any of the East Coast states.

Washington, Oregon and California also differ from each other in the percentages of hygienists working full, rather than part time. Thirty six percent of the Washington residents compared to 39% of Oregon residents and 49% of California residents worked full-time.

Number of Hours in a "Typical" Work Week [1]

Thirty six percent of the employed dental hygienists residing in Washington were working 33 hours or more. Additional details can be seen in Table 2.

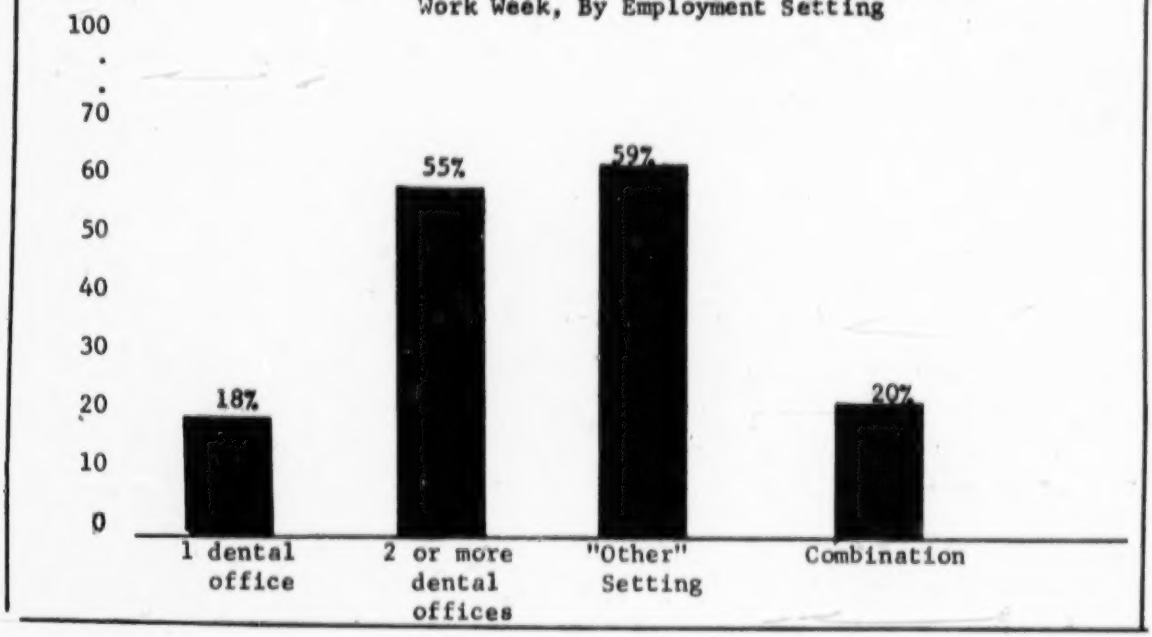
Table 2.
Hours Worked in a "Typical" Work Week

Hours	Number	Percent
1-8	33	14%
9-16	40	17%
17-24	35	15%
25-32	40	17%
33-36	28	12%
37-40	46	20%
41 and over	10	4%
Total	232	100%

[1] 107 respondents indicated they worked "full-time" rather than part-time. Yet only 84 specified their work week as 33 hours or more. Non-response does not influence this comparison. This discrepancy between "perceived" full-time work and the number of hours commonly considered as constituting full-time work may indicate that traditional survey questions of "full-time or part-time" employment are insufficient to establish the extent of employment. This may only apply to female dominated occupations where the work week is relatively flexible.

Number of Hours and Work Setting. Over half of the hygienists employed in two or more offices were working 33 or more hours in a typical work week. Only 18% of those employed in one dental office worked this number of hours. Differences in the work week when employment setting is considered are illustrated in Figure 4.

Figure 4
Percent Working 33 Hours or More Per "Typical" Work Week, By Employment Setting

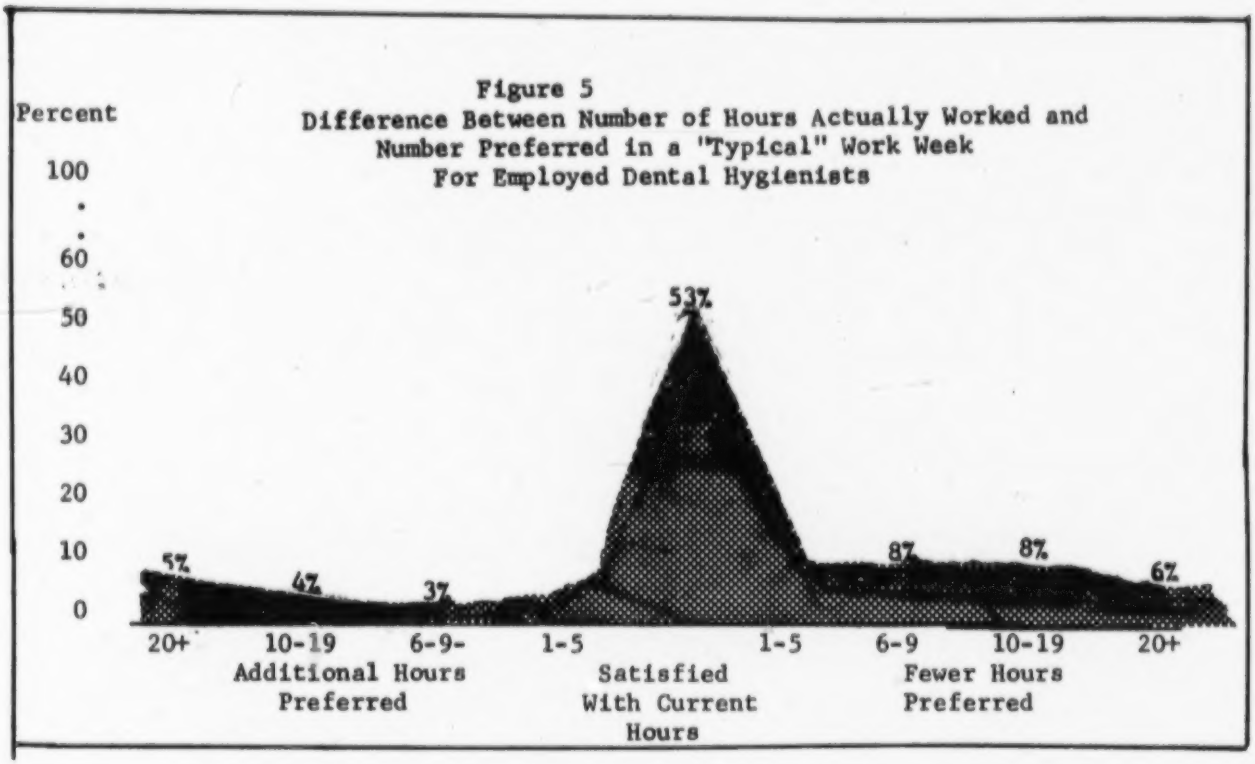


Number of Hours and Professional Education. No substantial differences were found in the number of hours worked when the type of educational program was considered. Nor were there any differences in the number of hours preferred in a typical work week.

Preferred Number of Hours in the Work Week

The dental hygienists were also asked the number of hours they would prefer to work in a typical work week. The number of hours actually worked and the preferred number of hours were compared. Half of the working hygienists living in Washington were satisfied with the hours in their current work week. Thirty percent would prefer to work fewer hours and 17% would like to work additional hours.

Figure 5
Difference Between Number of Hours Actually Worked and Number Preferred in a "Typical" Work Week For Employed Dental Hygienists



Work Setting

One half of the dental hygienists worked in only one dentist's office. Over a third worked in two or more dental offices. Nine percent of the respondents indicated their work setting was other than those listed on the questionnaire. These work settings referred to university and community college teaching or research and employment in public health.

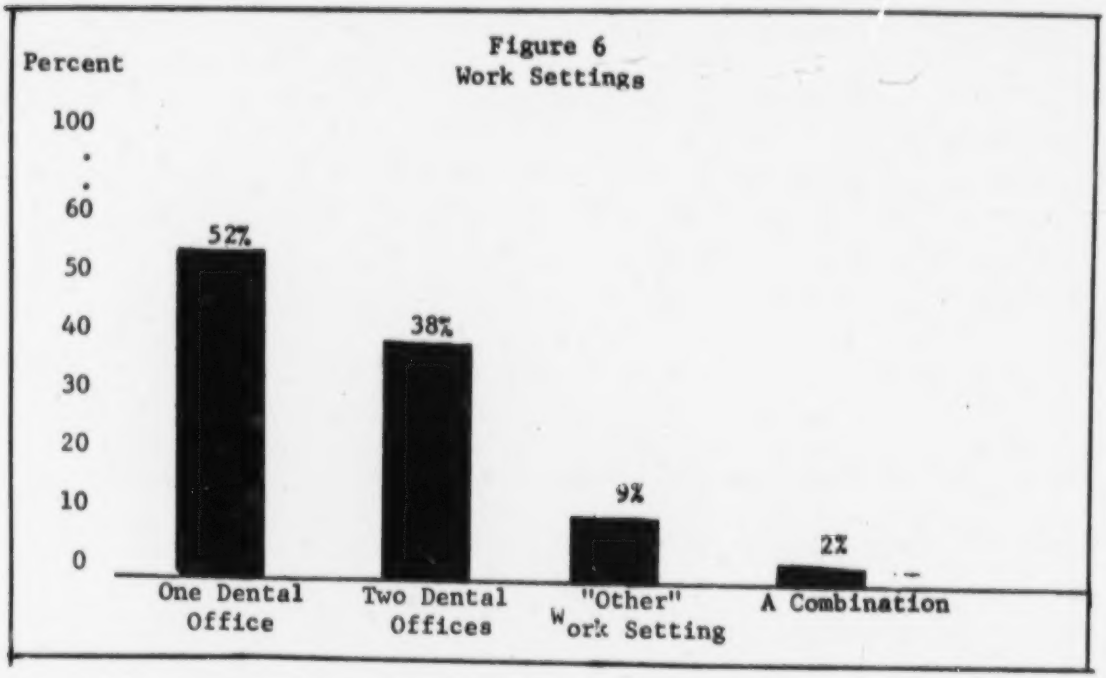


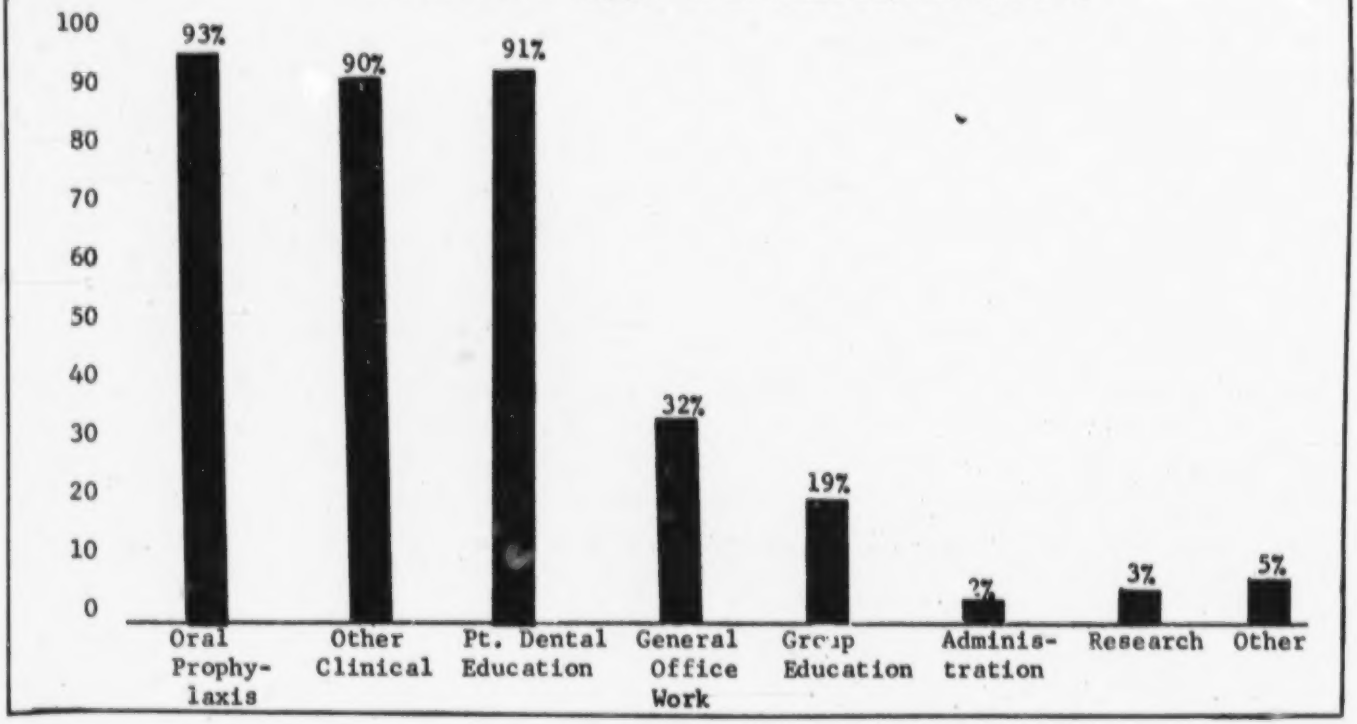
Figure 6
Work Settings

Work Functions

The dental hygienists were asked to specify any of eight work activities in which they engaged, at least part of the time. Nearly all of the respondents performed oral prophylaxis and other clinical activities. Ninety three percent specified that they were engaged in patient dental education.

Figure 7.

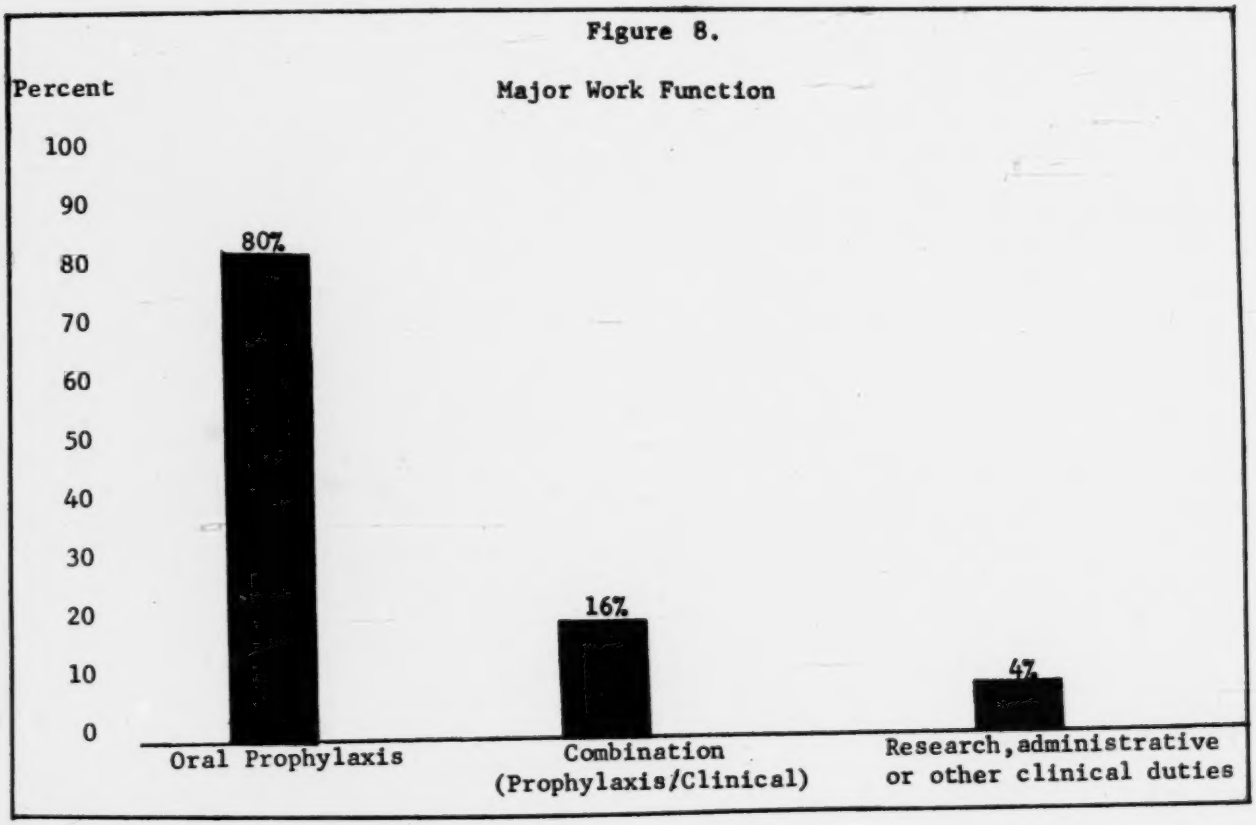
Work Functions Engaged in at Least Part of the Time



Major Work Function. The respondents also specified which of the above functions was their major work activity. The following figure, in contrast to that preceding, illustrates the primary concentration in clinical duties.

Eighty percent engaged primarily in oral prophylaxis and 16% in a combination of oral prophylaxis and other clinical duties.

Figure 8.



Work Functions and Professional Education. No appreciable difference in major work function was present when type of educational program completed was considered. With one exception, this was also true of participation in other activities engaged in at least part of the time. For example, 94% of those who had completed a baccalaureate program and 90% of those who had completed a certificate program engaged in some patient education, However,

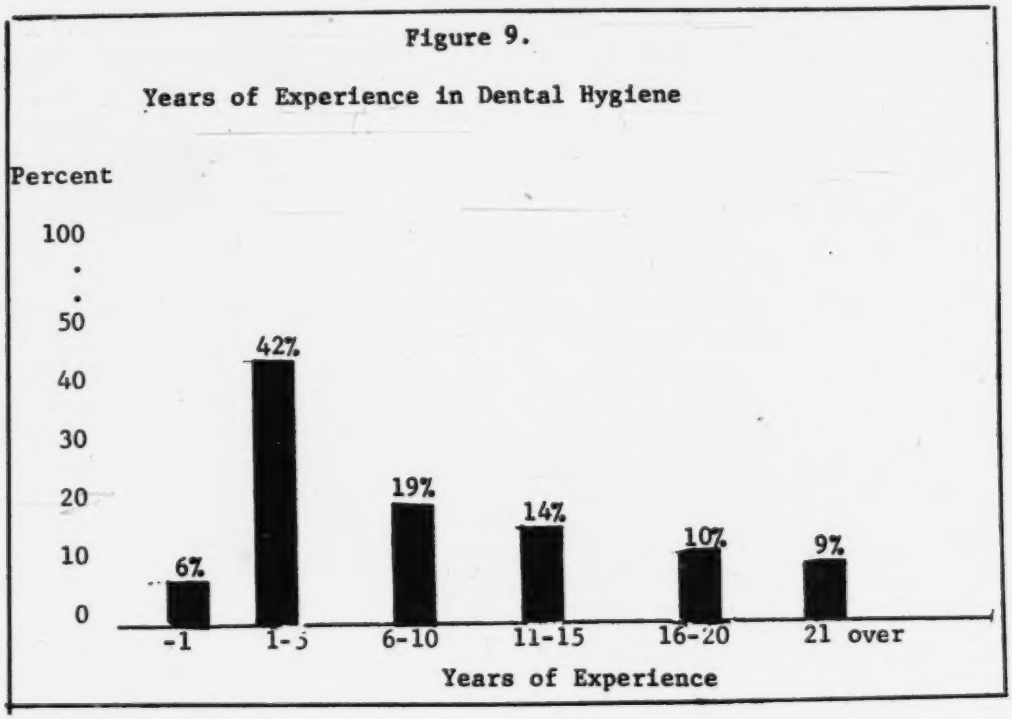
hygienists with baccalaureate preparation were more likely to engage in the activity designated on the questionnaire as "general office work" (pulling charts, answering the phone, "recalls,") than were those graduates of a certificate program. Forty four percent of the hygienists completing the baccalaureate program compared to 20% of those from the certificate program engaged in general office activities.

Work Experience

Half of the dental hygienists living in Washington had less than six years of experience in their profession. Years of experience is shown graphically in Figure 9.

Figure 9.

Years of Experience in Dental Hygiene



Background Characteristics

Marital Status

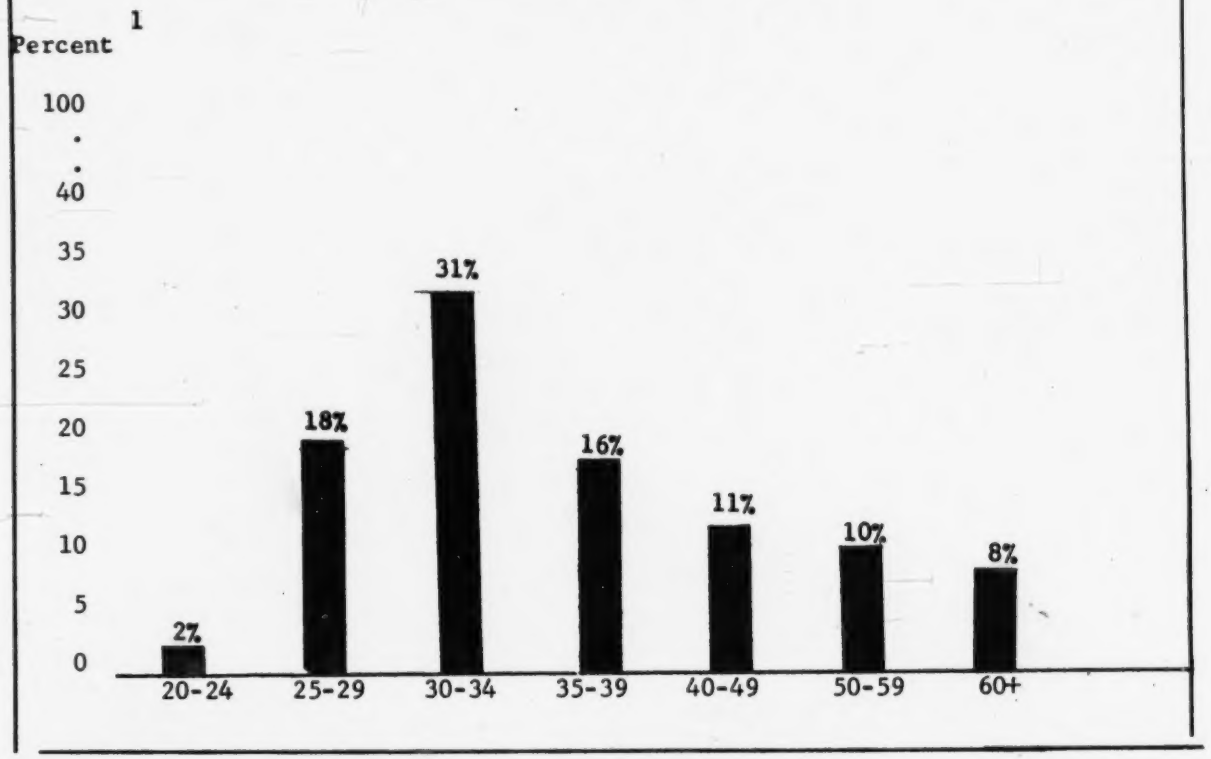
Three fourths of the Washington residents were married at the time of the survey. Sixteen percent were single and 6% were widowed or divorced.

Age

Half of the dental hygienists were under age 35. Compared to two other female-dominated health occupations, licensed practical nursing and registered nursing, dental hygienists consitute a younger group of women. About one half of the Licensed Practical Nurses and Registered Nurses were under age 45. (References 2 and 3)

Dental hygienists are more likely than licensed practical nurses and registered nurses to be of childbearing and rearing age. This finding has implications for both active employment status and the extent of employment (full or part-time), since in general, women in the childbearing and child-rearing ages are much more frequently unemployed, or working part-time if employed. The age distribution of dental hygienists living in Washington can be seen in detail in Figure 10.

Figure 10.
Age Distribution



1. Not shown in this figure are the non-respondents, constituting 3%.

Age and Residence. Dental hygienists licensed in Washington and residing in this state or in the West Coast states of Oregon or California were more often younger (age 39 or under). The differences are not pronounced.

Professional Education

Over half of the respondents had earned Baccalaureate Degrees and one third had earned Certificates in Dental Hygiene. Six percent (15 hygienists) had earned a combination of certificate, Baccalaureate Degree and/or an advanced degree.

Table 3.
Educational Attainments

Professional Education	Number	Percent
Certificate	109	37%
Baccalaureate	164	55%
Certificate + Baccalaureate	8	3%
Baccalaureate + Master's	2	1%
Certificate + Baccalaureate + Master's	2	1%
Other Degree Combinations	3	1%
No Response	8	3%
Total	296	100%

Information on each professional's total education can be an important indicator of upward occupational mobility.

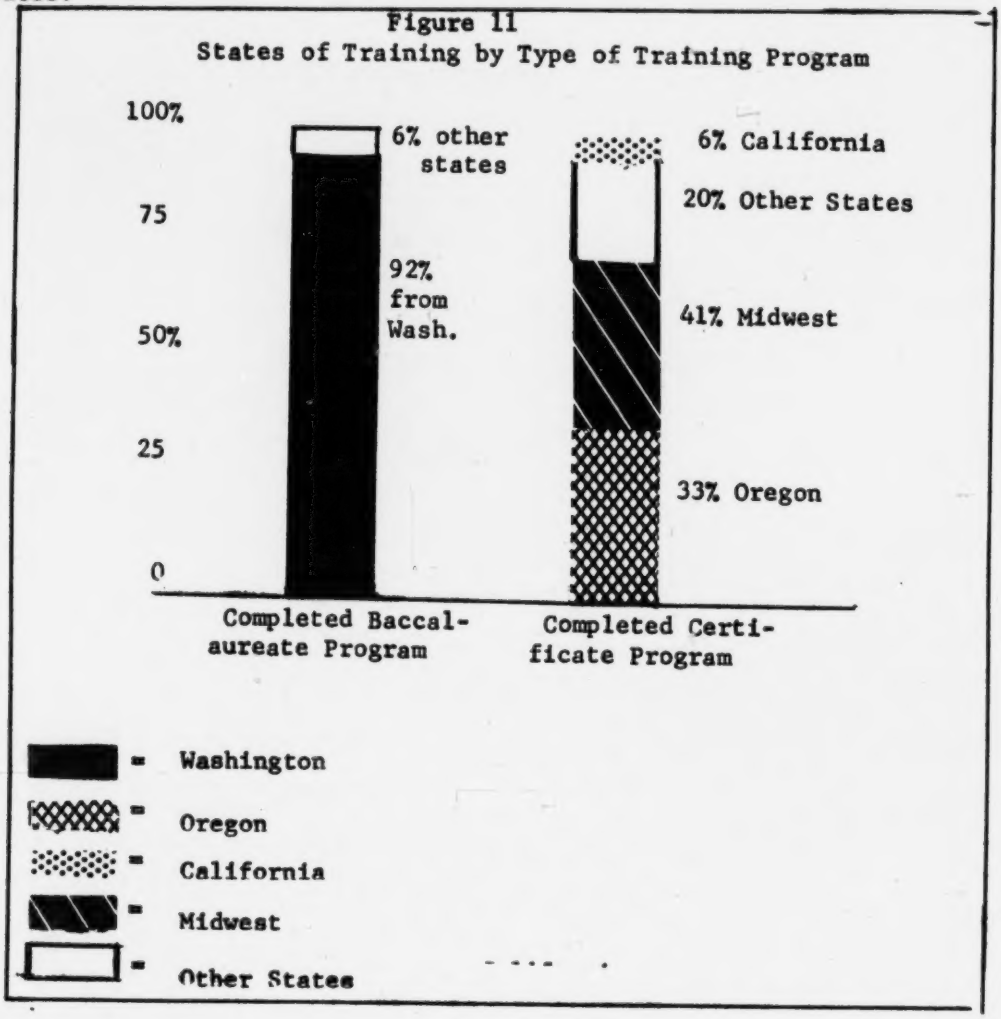
Location of Training. Over half of the dental hygienists were professionally trained in Washington. Fourteen percent were educated in Oregon, 19% in the west and midwestern states (primarily Minnesota, Michigan, Wisconsin and Illinois).

Table 4.
State of Dental Hygiene Education

State	Number	Percent
Washington	154	53%
Oregon	40	14%
California	12	5%
Mid-west and Western States	55	19%
All other states and Foreign countries	27	9%
Total	288	100%

Professional Education and State of Training. The hygienists had completed different types of educational programs according to the states of training. Ninety two percent of the hygienists with baccalaureate degrees were educated at the University of Washington. The majority of respondents with certificates were graduates of programs in Oregon or the midwestern states.

Figure 11
States of Training by Type of Training Program



Professional Education and Age. It was anticipated that there would be some difference in educational backgrounds when age was considered. Older respondents (age 50 and over) were more likely to have earned a certificate

as their highest educational attainment than younger hygienists, who more often had a baccalaureate degree. Sixty three percent of the hygienists age 50 to 59 had completed solely the certificate program, while 70% of those age 35 to 49 had earned a baccalaureate degree.

Retention of Washington Educated Dental Hygienists. Does Washington retain the manpower trained by its institutions? Forty three percent (233) of all dental hygienists licensed in Washington (514) were trained in Washington. Yet only 160 of the 223 (72%) actually resided in the state. This "loss" of 63 hygienists was offset through the in-migration of 106 hygienists who had completed their professional training out of state. Based on training data alone, a "net gain" of 43 professionals could be registered. It should be taken into consideration that this discussion only refers to training data and does not include such factors as current enrollment, geographic mobility or attrition rates.

Continuing Professional Education

The questionnaire included two questions on participation in academic and short-term refresher courses within the last five years. These questions were characterized by relatively low rates of response. There may have been some confusion as to whether questions referred to courses taken as part of a degree program or as continuing education. Both Figures 9 and 10 should be interpreted with caution.[2]

Over a third have taken one or more academic courses and over half have taken one or more short-term refresher courses, as graphically illustrated in the following figures.

[2]Questions regarding continuing professional education have been revised for the 1970 survey of dental hygienists licensed in Washington.

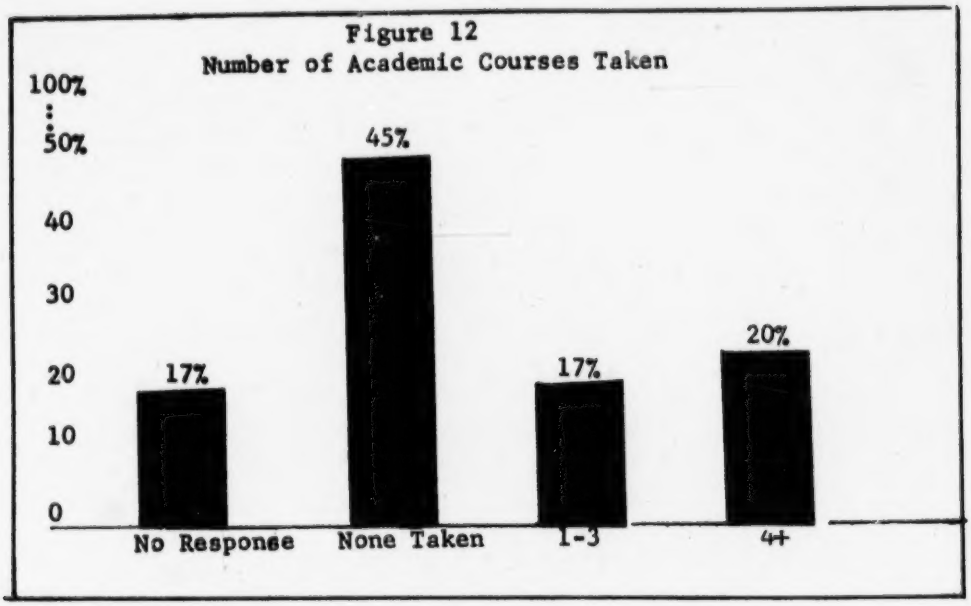


Figure 12
Number of Academic Courses Taken
100%
50%
40
30
20
10
0
17%
45%
17%
20%
No Response
None Taken
1-3
4+

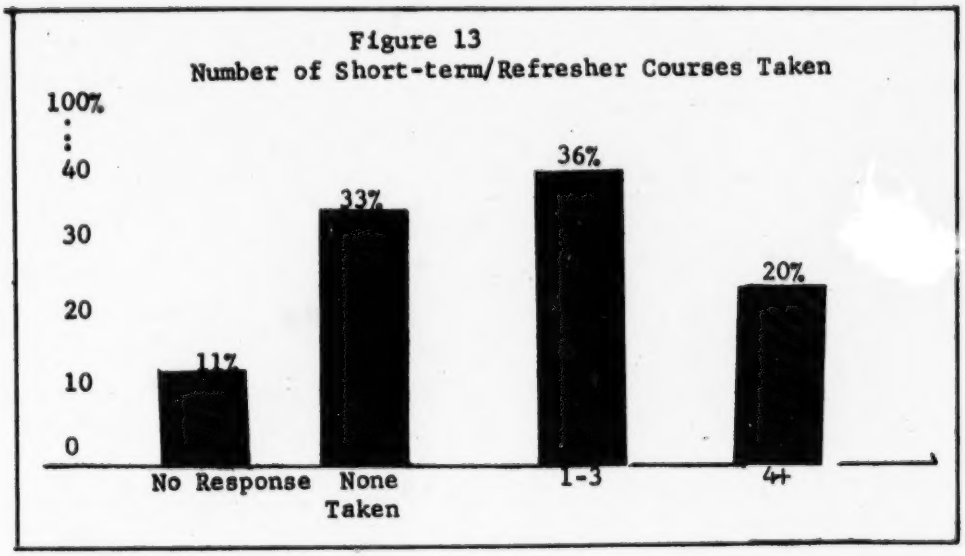


Figure 13
Number of Short-term/Refresher Courses Taken
100%
40
30
20
10
0
11%
33%
36%
20%
No Response
None Taken
1-3
4+

Continuing Education and Age. No sizeable differences were present in the continuing education participation when age was considered. Hygienists age 40 to 49 were somewhat less likely to have taken academic coursework. Seventeen percent had taken one or more courses compared to 40% of hygienists age 35 to 39. Older hygienists more often had participated in refresher/workshop courses, however. Over three fourths of those respondents age 50 and over had taken one or more such courses compared to half of those 30 to 34.

Continuing Education and Work Setting: Participation in academic and refresher/workshop courses did not vary significantly with the type of work setting. Hygienists who worked in educational institutions or in public health tended to report higher participation, but their number is small for comparative purposes. Eighty three percent of those in such work settings had taken one or more short-term/refresher courses, compared to 61% of those employed in a private office.

Continuing Education and State of Residence. Hygienists licensed in Washington and residing in Washington, Idaho, Oregon or California were somewhat more likely to participate in continuing education than those residing in the midwestern, eastern, and southern states.

Reported Reasons for Inactive Status

Of the 514 respondents to the survey, 140 (27%) were professionally inactive. Eleven dental hygienists were age 60 or older and may be, for the purposes of this report, considered retired. The remaining inactive hygienists (129) indicated various reasons for their withdrawal from the work force. They often specified more than one reason. Ninety nine (77% of hygienists under age 60) reported that full-time family obligations best described why they were not in practice. Eleven (8%) were employed as real estate broker, dental assistant, dentists, or high school teacher. Eleven hygienists (8%) specified that they were unable to find suitable employment and only 2 listed loss of skill as the primary reason for being inactive.

Fifteen inactive dental hygienists specified that they were only temporarily unemployed, since they were in the process of moving in or out of the state or were on unusually lengthy vacations.

While the dental hygienists gave various reasons for being inactive, the primary reason lies in family responsibilities. This has been found to be true of other female-dominated health occupations (Reference 2).

PART II: Comparisons and Trends...1966–69

Acknowledgement

The Health Manpower Project staff wishes to acknowledge the courteous assistance of Mr. B. J. Crawford, American Association of Dental Examiners, and of Mr. John O. McCracken, U.S. Public Health Service, Division of Dental Health, Resource Analysis Branch, in providing preliminary findings of the 1966 survey of dental hygienists licensed in Washington for purposes of comparison in this report.

INTRODUCTION

In October, 1966, the Washington State Board of Dental Examiners, under contract with the U.S. Public Health Service, Division of Dental Health, conducted a mail survey of all dental hygienists licensed to practice in Washington. Although the official report of this survey has not yet been published, preliminary statistical findings have been made available to the Health Manpower Project for the purposes of comparison and establishment of trends. Hereafter, the survey conducted by the Board of Dental Examiners will be referred to as "the 1966 survey" and the more recent survey conducted by the Health Manpower Project as "the 1969 survey."

The method of conducting the surveys and the response rates to them were very similar in both studies. Questionnaires were mailed with the hygienists' annual license renewals in 1966 and in 1969. The population in each study is suitable for comparisons--all dental hygienists licensed in Washington in 1966 and in 1969. Eighty percent of all dental hygienists who were licensed at the time of the survey in 1966 returned their questionnaires and 80% in 1969.[1]

[1] On Page v of this report, the response rate to the 1969 survey is said to be 88%. This figure is based on the number of hygienists actually renewing their licenses eight months after the renewals were sent out (July 28, 1969 to March 30, 1970). If one uses the number licensed at the time of the survey (640), the respondents (514) constitute 80%, if the number renewing their licenses for 1969-70 is used (583), 88% responded.

The questionnaires used in the two surveys were somewhat different, rendering direct comparisons at times difficult. The questionnaire used in the 1966 study was lengthy, and provides information on many items. In 1969, only a data processing-sized card was feasible, which restricted the number of questions asked. The latter questionnaire was designed such that as many comparisons as possible could be made with the information gathered through the 1966 questionnaire. Restrictions on specific comparisons will be stated.

Not all information gathered through the 1966 survey will be discussed in this report since a detailed report will be published by the U.S. Public Health Service, Division of Dental Health.

TRENDS IN THE DATA: 1966 and 1969

Number and Distribution: Between 1966 and 1969 the number of dental hygienists licensed in Washington increased by 21%. 528 dental hygienists were licensed in 1966 and 640 in 1969. About the same percentage actually lived in the state (63% in 1966 and 58% in 1969); and their residence by county was overwhelmingly urban. Eighty one percent in 1966 and 85% in 1969 resided in one of the state's four most populous counties (King, Pierce, Snohomish and Spokane).

Employment Characteristics: Three fourths of the respondents were employed in the field of dental hygiene in 1966 and in 1969, with one fifth of the total employed working full-time (35 hours or more).

Hygienists were more likely to be inactive during the childrearing years, although the age categories used in the 1966 data presentation do not permit direct comparison with the 1969 data.

Children were a factor in the extent of employment (full or part-time)

among the employed respondents. No information on number of children was gathered in the 1969 survey, but in 1966, 26% of those with no children and only 7% with children were working full-time. It may have been anticipated that more than 26% of the employed married women with no children would be working full-time rather than part-time. A national survey of female college graduates in 1964 by the Department of Labor found that 61% of the married respondents with no children were employed. (Reference 5)
The college graduates in the Department of Labor survey do not appear to differ from the licensed dental hygienists on the basis of education and proclivity to work--there were no significant differences among the dental hygienists' employment status when their training (degree or certificate program) was considered. Yet compared to the national sample of college graduates, dental hygienists are much less likely to work full-time. This finding may reflect such factors as existing work opportunities in Washington and preferred choice in the number of hours worked. The data do not indicate whether the small percentage of hygienists working full-time is due to choice or lack of available full-time opportunities. Many professionals might work part-time if employment opportunities allowing for shorter hours and greater flexibility, were available.

The distribution of hours in a typical work week was similar for dental hygienists in 1966 and in 1969. About one third of the respondents worked full-time (33 hours a week or more). One third worked between 17-32 hours and the rest of the respondents worked 16 hours or less.

Ninety five percent of the employed respondents in 1966 and 90% in 1969 worked in one or more private dental offices. Information on the

number of dentist-employers was obtained in 1966, although not in 1969. The data indicate that 41% of the hygienists worked for only one dentist, a third for two dentists and the remaining hygienists for three or more dentists. The typical work setting was therefore a private dental office with one employer - a dentist.

The work activities reported by employed hygienists in 1966 were very similar to those reported in 1969. For example, 100% of the employed hygienists in 1966 and 93% in 1969 reported that they engaged in oral prophylaxis.

Background Characteristics: Hygienists living in Washington in 1969 constituted an older group than in 1966. Forty one percent in 1966 and 20% in 1969 were under the age of 30. An even more striking difference is the percentage of hygienists under the age of 25: 22% in 1966 and only 2% in 1969 were in this age group.

Information on continuing education participation gathered through the survey of 1969 referred to courses and workshops taken during the last five years. In 1966 information was obtained on the last twelve months. Participation figures for the last five years were, as would be expected, higher than those for the last twelve months. Fifty six percent in 1969 and 24% in 1966 reported they had taken short-term/refresher courses.

Interest in taking refresher training in dental hygiene was shown in the 1966 data to be related to employment status. Eighty six percent of the employed and 67% of the inactive hygienists were interested in taking refresher courses. (No data were obtained in 1969 on interest in taking refresher training.)

In 1966, plans for returning to college were also associated with current employment status (no information was obtained on such plans in 1969). Forty nine percent of the active and 26% of the inactive hygienists had seriously considered returning to school.

The 1966 data provide some interesting details regarding future employment plans of inactive hygienists--findings which are similar to studies of inactive female personnel in other health occupations, such as nursing. Of the 72 inactive respondents, only 21 (29%) could specify the length of time until their return to work and were fairly definite both about ever returning and the time of return. This would seem to parallel the finding among inactive registered nurses that although many express an interest in returning to nursing, most do not actually make the plans to do so. (Reference 4)

Information on yearly earnings is important to the examination of supply in an occupation. In 1966, the survey respondents reported their income from the last twelve months. The majority of the hygienists in 1966 reported incomes of under $5,000. Of those hygienists working full time (35 hours or more per week) all year round however, nearly all reported incomes of $5,000 or more.

Table 5.

Income Reported by Dental Hygienists in the 1966 Survey

Earnings:	All Employed Hygienists (including part-time)		Employed Full-time, year round	
Under 3,000	51*	40%	1**	4%
3,000 to 4,999	25	20%	2	9%
5,000 and over	51	40%	20	87%
	127	100%	23	100%

* Includes 9 hygienists who reported their income as "none" and indicated they were working for their dentist-husbands.

** Includes 1 hygienist who reported no income and indicated she was working for her dentist-husband.

In this report, the findings of the 1969 survey of licensed dental hygienists were presented and interpreted. This was followed by a comparison of the 1969 findings with information gathered in 1966 on licensed dental hygienists. Further details of the 1966 survey may be found in the report to be issued during 1970 by the U.S. Public Health Service, Division of Dental Health, Resource Analysis Branch.

APPENDICES

Research Form (D.H. 1969) PLEASE RETURN WITH LICENSURE FORM

A. Name_____

1. Professional Address: State_____City_____County_____Zip Code_____

PLEASE CIRCLE NUMBER PRECEDING A STATEMENT OR FILL IN REPLY WHERE INDICATED

FILL IN FRONT AND REVERSE SIDE OF FORM

2. Age_____

3. Marital Status:
   1. Single
   2. Married
   3. Divorced
   4. Widowed

4. Type of Certificate or Degree in Dental Hygiene Received:
   1. Diploma or Certificate
   2. Bachelor's Degree
   3. Master's Degree
   4. Other (Specify)_____

5. In Which State Was Your Degree Granted_____

6. License in Washington Granted by:
   1. Examination
   2. Reciprocity
   3. Other (Specify)_____

7. Are You:
   1. Employed Full-time as a Dental Hygienist
   2. Employed Part-time as a Dental Hygienist
   3. Employed in Another Occupation (Specify)
      _____
   4. Retired, Student or Unemployed

8. How Many Hours Do You Currently Work as a Dental Hygienist:
   1. Home
   2. In a typical week_____
   3. In a typical month_____

9. Please State Your PREFERENCE Concerning Number of Working Hours:
   1. In a typical week_____
   2. In a typical month_____
   3. Prefer not to work_____

   (Those who are retired, student, or unemployed go on to Question 13)

PLEASE CONTINUE ON REVERSE SIDE ---------->

Research Form (D.H. 1969) PLEASE RETURN WITH LICENSURE FORM

APPENDIX A.

The Questionnaire

APPENDIX B.

Selected Data Tables

These tables are presented both for additional detail to the textual discussion and to provide actual numbers for manpower planning.

SELECTED DATA TABLES ON DENTAL HYGIENISTS

Table Number:	Title:
Table 1	Geographic Region of Residence of Dental Hygienists Licensed in Washington

Tables 2 through 14 contain information on dental hygienists licensed in and living in Washington.

Table 2	Employment Status
Table 3	Degree Earned by Employment Status
Table 4	Difference Between Number of Hours Actually Worked and Number of Hours Preferred In A Typical Work Week
Table 5	Work Setting
Table 6	Percent Engaging In An Activity At Least Some of the Time By Type of Professional Education
Table 7	Percent Engaging in An Activity At Least Part of the Time
Table 8	Work Setting by Type of Professional Education
Table 9	Major Activity by Type of Professional Education
Table 10	Years of Experience
Table 11	Age
Table 12	Professional Education by State of Educational Preparation
Table 13	Professional Education by Age
Table 14	Major Reasons for Unemployment in Dental Hygiene

Table 1.
Geographic Region of Residence of Dental Hygienists
Licensed in Washington

Region	Number	Percent
West Coast:		
Washington	296	58%
Oregon	44	8%
California	41	8%
Hawaii and Alaska	15	3%
Mid-West and West	35	7%
South	7	1%
East Coast	14	3%
Foreign (including Canada)	6	1%
No Response	56	11%
	514	100%

DENTAL HYGIENISTS LICENSED IN AND LIVING IN WASHINGTON

Table 2.
Employment Status

Employed	Number	Percent
Full-time	107	36%
Part-time	122	41%
In Another Occupation	9	3%
Unemployed	58	20%
Total	296	100%

Table 3.
Degree Earned by Employment Status

Professional Education	Full-time		Part-time		Other Occup.		Unemployed		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%
Certificate	41	38%	49	45%	2	2%	17	15%	109	100%
B.A.	56	34%	64	39%	5	3%	39	24%	164	100%
Cert./B.A.	3	38%	4	50%	0	0	1	12%	8	100%
B.A./M.A.	1	50%	1	50%	0	0	0	0	2	100%
Cert./B.A./M.A.	1	50%	0	0	1	50%	0	0	2	100%
Other Degree Combinations	1	33%	1	33%	1	33%	0	0	3	100%
No Response	4	50%	3	38%	0	0	1	12%	8	100%

Table 4.
Difference between Number of Hours Actually Worked and Number of Hours Preferred In A Typical Work Week

Number of Additional Hours Preferred	Number	Percent
20 and over	11	5%
10-19	10	4%
6-9	8	3%
1-5	11	5%
No Difference Between Actual and Preferred Hours	122	53%
Number of Fewer Hours Preferred		
1-5	18	8%
6-9	19	8%
10-19	18	8%
20 and over	15	6%
	232	100%

Number responding to question = 232
No response to question = 6

Table 5.
Work Setting

Employed In	Number	Percent
1 Private Dental Office	118	52%
2 or more Private Dental Offices	85	37%
Other Work Setting	20	9%
Combination	5	2%
	228	100%

Number Responding = 228
No Response = 10

Table 6.
Percent Engaging In An Activity At Least Some Of The Time[1]
By Type of Professional Education

Professional Education		Proph.		Other Clinic.		Ptn. Educ.		Gen. Off.		Group Educ.		Adm.		Research		Other Activities	
		N	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Certificate	(N=90)	89	99%	82	91%	83	92%	18	20%	16	18%	0	0	2	2%	2	2%
B.A.	(N=114)	114	100%	114	100%	114	100%	53	46%	26	23%	3	3%	3	3%	8	7%
Cert./B.A.	(N=7)	7	100%	7	100%	7	100%	2	29%	2	29%	1	14%	1	14%	1	14%
B.A./M.A.	(N=2)	1	50%	1	50%	1	50%	0	0	0	0	0	0	0	0	1	50%
Cert./B.A./M.A.	(N=1)	1	100%	1	100%	1	100%	0	0	0	0	0	0	0	0	1	100%
Other	(N=2)	2	100%	2	100%	2	100%	0	0	1	50%	1	50%	1	50%	0	0

[1] Respondents could check multiple answers, therefore figures are not totalled.

Table 7.
Percent Engaging In An Activity At Least Part Of The Time[1]

Activity	Number	Percent of Employed Respondents (N = 238)
Oral Prophylaxis	222	93%
Other Clinical Duties	215	90%
Patient Education	216	91%
General Office Work	75	32%
Group Education	45	19%
Administration	5	2%
Research	7	3%
Other Activities	13	5%

[1] Respondents checked multiple answers so figures were not totalled.

Table 8.
Work Setting by Type of Professional Education

Work Setting	Cert.		B.A.		Cert./ B.A.		B.A./ M.A.		Cert./B.A./ M.A.		Other		N.R.	
1 Private Dental Office	45	50%	65	54%	2	29%	1	50%	1	100%	0	0	3	43%
2 or more Private Dental Offices	36	40%	43	36%	2	29%	0	0	0	0	1	50%	4	57%
Other Settings	6	7%	8	7%	1	14%	1	50%	0	0	1	50%	0	0
Combination	3	3%	1	1%	1	14%	0	0	0	0	0	0	0	0
No Response	0	0	3	2	1	14%	0	0	0	0	0	0	0	0
	90	100%	120	100%	7	100%	2	100%	1	100%	2	100%	7	100%

Number responding to one or both questions = 229

No-response to both questions = 9

Table 9.
Major Activity by Type of Professional Education

	Cert.		B.A.		Cert./ B.A.		B.A./ M.A.		Cert./B.A./ M.A.		Other Combination	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Oral Proph.	65	79%	94	81%	6	100%	1	50%	1	50%	1	50%
Other Clinic.	0	0	2	2	0	0	0	0	0	0	0	0
Admin.	0	0	0	0	0	0	0	0	0	0	1	50%
Other	0	0	4	3	0	0	1	50%	1	50%	0	0
Combination	17	21%	16	14	0	0	0	0	0	0	0	0
Total	82	100%	116	100%	6	100%	2	100%	2	100%	2	100%

Number responding to one or both questions = 210

No response to both questions = 28

Table 10.
Years of Experience

Years	Number	Percent
under 1	15	6%
1-5	91	42%
6-10	42	19%
11-15	31	14%
16-20	23	10%
over 21	19	9%
	221	100%

Number Responding to Question = 221
No Response to Question = 17

Table 11.
Age

Age	Number	Percent
20-24	7	2%
25-29	52	18%
30-34	93	31%
35-39	47	16%
40-49	34	12%
50-59	30	10%
60 and over	23	8%
No Response	10	3%
	296	100%

Table 12.
Professional Education by State of Educational Preparation

State	Cert.		B.A.		Cert./ B.A.		B.A./ M.A.		Cert./B.A./ M.A.		Other Degree Comb.	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Washington	0	0	151	92%	3	38%	0	0	0	0	0	0
Oregon	37	34%	0	0	2	25%	0	0	0	0	1	33%
California	5	5%	7	4%	0	0	0	0	0	0	0	0
West and Mid-West States[1]	45	41%	3	2%	2	25%	1	50%	2	100%	2	67%
Other States and Countries	22	20%	3	2%	1	12%	1	50%	0	0	0	0
Total	109	100%	164	100%	8	100%	2	100%	2	100%	3	100%

Number Responding to Question = 288
No Response to Question = 8

[1] States most frequently mentioned were Michigan, Minnesota, Illinois and Wisconsin

Table 13.
Professional Education by Age

Professional Education	20-24		25-39		30-34		35-39		40-49		50-59		60 and over	
	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
Certificate	5	71%	16	31%	23	25%	12	26%	10	29%	19	66%	14	74%
B.A.	2	29%	34	66%	61	68%	33	70%	24	71%	9	31%	1	5%
Cert./B.A.	0	0	1	3%	4	4%	2	4%	0	0	0	0	1	5%
B.A./M.A.	0	0	0	0	2	2%	0	0	0	0	0	0	0	0
Cert./B.A./M.A.	0	0	0	0	1	1%	0	0	0	0	1	3%	0	0
Other Degree Combinations	0	0	0	0	0	0	0	0	0	0	0	0	3	16%
Total	7	100%	51	100%	91	100%	47	100%	34	100%	29	100%	19	100%

Number responding to questions = 278
No response to questions = 18

Table 14.
Major Reasons for Unemployment in Dental Hygiene[1]

Major Reason	Number	Percent[2] of Inactive Respondents Under Age 60 (N = 129)
Full-time family obligations	99	77%
In process of moving	15	12%
Husband against employment	14	11%
Prefer not to work	12	9%
Employed in another occupation	11	9%
No suitable position	10	8%
Loss of skill	2	2%

[1]Refers to inactive respondents under age 60 among all hygienists licensed (514).

[2]Respondents checked multiple answers so figures were not totalled.

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